

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Spectrum Horizons	)	ET Docket No. 18-21
	)	
Battelle Memorial Institute Petition for Rulemaking to	)	RM-11713
Adopt Fixed Service Rules in the 102-109.5 GHz Band	)	(Terminated)
	)	
Request for Waiver of ZenFi Networks, Inc. and Geneva	)	
Communications LLC	)	WT Docket No. 15-245
	)	(Terminated)
James Edwin Whedbee Petition for Rulemaking to	)	
Allow Unlicensed Operation in the 95-1,000 GHz Band	)	RM-11795

**REPLY COMMENTS OF SES AMERICOM, INC. AND O3B LIMITED**

SES Americom, Inc. and its affiliate O3b Limited (collectively, “SES”) respectfully submit these reply comments in response to the Federal Communication Commission’s Notice of Proposed Rulemaking (“NPRM”) in the above-captioned proceeding regarding service rules for operations in the 95-275 GHz frequency bands.<sup>1</sup>

SES applauds the Commission for evaluating these bands but joins other commenters in urging the Commission to exercise caution in attempting to regulate as-yet-unknown communications technologies and to recognize the importance of ensuring that all viable services have access to bands above 95 GHz.

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<sup>1</sup> In the Matter of Spectrum Horizons, *et al.*, ET Dkt No. 18-21, *Notice of Proposed Rulemaking*, FCC 18-17 (Feb. 28, 2018) (“NPRM”).

**I. The Commission’s Rules Should Encourage a Variety of Development Rather than Limit Potential Uses of the 95-275 GHz Bands**

While there is some limited interest in utilizing the spectrum above 95 GHz for future commercial services,<sup>2</sup> the Commission should proceed cautiously at this stage of technological development in these bands. As the Commission notes, the technologies that will operate in these bands are not yet known, and an overly strict licensing or sharing regime could inhibit the development of new communications offerings.<sup>3</sup> While there is value in establishing a framework so that advanced technologies and services can begin operations without undue delay,<sup>4</sup> the Commission should not prioritize haste over enacting an effective and appropriate licensing scheme.

A number of commenters raised concerns about the rigidity of some of the Commission’s proposals. SIA argues that the Commission should exercise caution in adopting rules for specific services in bands above 95 GHz until a near-term need for the spectrum is demonstrated.<sup>5</sup> Google warns that “establishing service rules too early could foreclose options for innovative new technologies that have not yet been imagined.”<sup>6</sup> Facebook urges the Commission to ensure that its decisions do not preclude any potential use cases or future technologies.<sup>7</sup> Apple expresses similar concerns that the Commission’s proposals may preclude future technologies and services.<sup>8</sup>

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<sup>2</sup> Eleven active experimental licenses are being used to support commercial and educational research in the 95-275 GHz bands. *See NPRM*, ¶ 16.

<sup>3</sup> *See NPRM*, ¶¶ 2, 3.

<sup>4</sup> *Id.*, ¶ 19.

<sup>5</sup> Comments of the Satellite Industry Association, ET Dkt No. 18-21, filed May 2, 2018 at 11-12.

<sup>6</sup> Comments of Google LLC, ET Dkt No. 18-21, filed May 2, 2018 at 1.

<sup>7</sup> Comments of Facebook, Inc., ET Dkt No. 18-21, filed May 2, 2018 at 3.

<sup>8</sup> Comments of Apple, ET Dkt No. 18-21, filed May 2, 2018 at 3-4.

SES agrees with these arguments. As the Commission notes, only a limited number of applicants have expressed interest in spectrum above 95 GHz to date,<sup>9</sup> and their filings do not indicate any imminent, commercial need for these frequencies.<sup>10</sup> Implementing service or sharing rules without a better understanding of the technologies that will operate in these bands creates risk that Commission regulations could stifle developments in the spectrum rather than facilitate them. The Commission should wait until communications technologies for the bands above 95 GHz are sufficiently developed before implementing detailed service rules.

## **II. The Commission Should Not Impose Any Sharing Rules Between Fixed Satellite Service and Mobile Service in the Bands Above 95 GHz at This Time**

The Commission's proposal to apply sharing rules to bands allocated for both fixed satellite service ("FSS") and terrestrial mobile service ("MS") is premature. The Commission does not have sufficient information about potential uses of the bands necessary to craft an effective and efficient sharing regime. The Commission cannot evaluate reasonable sharing schemes for undeveloped technologies and should refrain from implementing sharing rules between FSS and MS for any bands above 95 GHz.

The proposal to import the sharing scheme applied to the 28 and 37/39 and 47 GHz bands ("UMFUS rules") to the bands above 95 GHz is particularly troublesome.<sup>11</sup> The UMFUS rules were the result of careful deliberation and planning based on a well-developed record of the likely uses of the relevant spectrum bands and took into account both the physical properties of the spectrum and the commercial uses of the frequency bands to which they were applied.<sup>12</sup> As

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<sup>9</sup> See *NPRM*, ¶¶ 10, 16.

<sup>10</sup> *Id.*, ¶ 17. For example, the majority of these licenses are for educational use.

<sup>11</sup> *Id.*, ¶ 46

<sup>12</sup> Notably, the UMFUS rules have only recently been implemented, and the Commission has not had a chance to evaluate whether the rules achieve the Commission's goals. The Commission

SIA notes, the “assumptions that drove the regulatory decisions for the 28 and 37/39 GHz bands are inapposite when considering appropriate guidelines for the bands above 95 GHz.”<sup>13</sup> TIA similarly advises against adopting rigid service rules in bands above 95 GHz, suggesting the Commission implement mobile designations only “in bands that have minimal sharing concerns with other services.”<sup>14</sup> Applying sharing rules to the bands above 95 GHz before the technology that will operate in these bands is known could easily impair the development and deployment of innovative telecommunications services, leading to inefficient use of the spectrum.

Should the Commission, notwithstanding these considerations, choose to implement sharing rules for operations above 95 GHz, the regulatory scheme should be one that grants all stakeholders full flexibility and access necessary to encourage the development of communications technologies. FSS holds a co-primary allocation with MS in over 40 GHz of spectrum in the 95 GHz to 275 GHz range, which should allow the Commission to balance the interests of both services.<sup>15</sup> Any sharing rules the Commission chooses to impose at this time should not preemptively or uniformly constrain FSS operations in these high-frequency bands.

### **III. The Commission Should Disregard Short-Sighted Proposals That Seek to Preemptively Curtail Satellite Access to the Bands Above 95 GHz**

T-Mobile argues that the Commission should not identify additional frequency bands for satellite operations on the unfounded basis that there has been “no demonstrated requirement for

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should assess the efficacy of the UMFUS rules before exporting the rules to other greenfield bands.

<sup>13</sup> SIA Comments at 8.

<sup>14</sup> Comments of the Telecommunications Industry Association, ET Dkt No. 18-21, filed May 2, 2018 at 5.

<sup>15</sup> *NPRM*, ¶ 46.

use of this spectrum by satellite providers.”<sup>16</sup> Oddly, T-Mobile does not have the same reservations about the Commission setting aside additional spectrum above 95 GHz for MS despite acknowledging that “technology does not exist today to support mobile applications in frequencies above 95 GHz.”<sup>17</sup>

The Commission must not lose sight of the true intent of the Spectrum Horizons proceeding: “to increase opportunities for entities to develop new services and technologies from 95 GHz to 3 THz with no limits on geography or technology.”<sup>18</sup> It should disregard proposals that seek to arbitrarily undermine this goal.

#### **IV. The Commission Should Heed Boeing’s Request to Fully Staff the Office of Engineering and Technology**

SES supports Boeing’s suggestion that the Commission should exercise increased diligence in ensuring that the Office of Engineering and Technology’s (“OET”) Experimental Licensing Branch is maintained at its full staffing levels.<sup>19</sup> Operators are currently developing exciting uses for millimeter wave spectrum for fixed, mobile and satellite services, and are already flooding OET with experimental license applications. As the Commission notes, “new technological advances have emerged to push the boundary of usable spectrum even further.”<sup>20</sup> In order for the Commission to facilitate the development of new technologies that will push the boundaries of usable spectrum, it must make sure that OET is fully staffed to handle its already

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<sup>16</sup> T-Mobile USA, Inc., ET Dkt No. 18-21, filed May 2, 2018 at 13.

<sup>17</sup> *See id.* at 5.

<sup>18</sup> *NPRM*, ¶ 1.

<sup>19</sup> The Boeing Company, ET Dkt No. 18-21, filed May 2, 2018 at 13.

<sup>20</sup> *NPRM*, ¶ 1.

substantial existing workload as well as the growing number of applications to develop new communications technology in the bands above 95 GHz.

## **V. Conclusion**

The Commission's preliminary evaluation of the 95-275 GHz bands is laudable. The lack of regulatory certainty has the potential to limit the commercial development of these high-frequency spectrum bands. However, the Commission should proceed cautiously and avoid imposing a strict sharing scheme in any of the bands between 95 and 275 GHz until it can develop an adequate record on the technologies and commercial business plans that will rely on these bands. The Commission should be mindful of its goal to open the bands above 95 GHz to all potential communications applications and ensure that it is equipped to facilitate the development of future communication technologies so that those technologies may enrich the lives of Americans in the near future.

Respectfully submitted,

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